

IN THE CLAIMS

1. (currently amended) A method of electrically addressing a matrix screen of bistable nematic liquid crystals with breaking of anchoring, the method comprising the steps ~~which consist in applying controlled electrical signals respectively to row electrodes and to column electrodes of the screen, and being characterized in that it further comprises comprising the steps which consist in simultaneously addressing~~ a plurality of rows using similar row signals that are offset in time by a duration greater than or equal to the time column voltages, said row addressing signals comprising in a first period at least one voltage value serving to break the anchoring of all of the pixels in the row, followed by a second period enabling the final states of the pixels making up the address row to be determined, said final states being a function of the value of each of the electrical signals applied to the corresponding columns.

2. (currently amended) A method of addressing a matrix screen of bistable nematic liquid crystals with breaking of anchoring according to claim 1, ~~characterized by the fact that~~ wherein the screen uses two textures, one texture being uniform or lightly twisted in which the molecules are at least substantially parallel to one another, and the other texture differing from the first by a twist of the order of $\pm 180^\circ$.

3. (currently amended) A method according to either ~~preceding claim 1, characterized by the fact that~~ wherein the ends of the column signals are synchronized ~~on~~ with the ends of the row signals.

4. (currently amended) A method according to ~~any preceding claim~~claim 1, ~~characterized by the fact that~~wherein

$$\tau_c \leq \tau_D < \tau_L$$

in which relationship:

τ_D represents the time offset between two row signals;

τ_L represents the row addressing time comprising at least an anchoring breaking stage and a texture selection stage; and

τ_c represents the duration of a column signal.

5. (currently amended) A method according to ~~any preceding claim~~, claim 1, ~~characterized by the fact that~~ wherein the time for addressing x simultaneously addressed rows is equal to

$$\tau_L + [\tau_D(x-1)]$$

in which relationship:

τ_D represents the time offset between two row signals; and

τ_L represents the row addressing time including at least an anchoring breaking stage and a texture selection stage.

6. (currently amended) A method according to ~~any one of claims 1 to 5~~, claim 1, ~~characterized by the fact that~~ wherein the rows addressed simultaneously in time overlap are adjacent rows.

7. (currently amended) A method according to ~~any one of claims 1 to 5~~claim 1, ~~characterized by the fact that~~ wherein the rows addressed simultaneously in time overlap are rows that are spaced apart.

8. (currently amended) A method according to claim 7, ~~characterized by the fact that it consists in further comprising~~ simultaneously addressing i modulo j rows, i.e. rows i , $i+j$, $i+2j$, etc., by providing a row signal of duration $\tau_L = j\tau_D$, by offsetting two successive simultaneously applied row signals in time by τ_D , and by offsetting the successive blocks of simultaneously applied row signals by τ_L .

9. (currently amended) A method according to ~~any one of claims 1 to 8~~claim 1, ~~characterized by the fact that wherein the~~ parameters of the signals applied to the screen column electrodes are adapted to reduce the rms voltage of interfering pixel pulses in order to reduce the interfering optical effects of the addressing.

10. (currently amended) A method according to ~~any one of claims 1 to 9~~claim 1, ~~characterized by the fact that wherein the~~ parameters of the signals applied to the screen column electrodes are adapted to reduce the rms voltage of the interfering pixel pulses to a value of less than the Freedericksz voltage, so as to reduce the interfering optical effects of the addressing.

11. (currently amended) A method according to claim 10, ~~characterized by the fact that wherein the~~ parameters adapted to the electrical signal are selected from the group consisting of ~~comprising: the waveform, and/or the duration, and/or the~~ amplitude of the column signal.

12. (currently amended) A method according to ~~any one of claims 1 to 11~~claim 1, ~~characterized by the fact that wherein the~~ a duration of the column signal is less than the duration of ~~the a last plateau of the row pulse.~~

13. (currently amended) A method according to ~~any one of claims 1 to 12~~claim 1, ~~characterized by the fact that wherein the~~ column signal presents a squarewave shape.

14. (currently amended) A method according to ~~any one of claims 1 to 12~~claim 1, ~~characterized by the fact that wherein the~~ column signal presents a ramp shape.

15. (currently amended) A method according to ~~any one of claims 1 to 14~~claim 1, ~~characterized by the fact that wherein x~~

consecutive rows are addressed simultaneously with a time offset τ_D from one row to the next, the column signals corresponding to each row being sent sequentially once every τ_D , and each row signal having a total duration of not less than $\tau_L = x\tau_D$.

16. (currently amended) A method according to ~~any one of claims 1 to 15~~claim 1, characterized by the fact that wherein the a beginning of the row signal for the $(i+x)^{th}$ row is synchronized on with the an end of the row signal for the i^{th} row.

17. (currently amended) A method according to ~~any one of claims 1 to 16~~claim 1, characterized by the fact that wherein the row signals do not present any symmetrization.

18. (currently amended) A method according to ~~any one of claims 1 to 16~~claim 1, characterized by the fact that wherein the signals present frame symmetrization.

19. (currently amended) A method according to claim 18, ~~characterized by the fact that wherein the polarities of the row signals are reversed from one image p to the following image p+1.~~

20. (currently amended) A method according to claim 18, ~~or claim 19, characterized by the fact that wherein the polarities of the row signals and the polarities of the column signals are reversed from one image p to the following image p+1.~~

21. (currently amended) A method according to ~~any one of claims claim 18, to 20,~~ characterized by the fact that wherein the polarities of two successive row signals are reversed.

22. (currently amended) A method according to ~~any one of claims claim 18 to 21,~~ characterized by the fact that wherein the polarities of two successive row signals, and also of two successive column signals are reversed.

23. (currently amended) A method according to ~~any one of claims 17 to 22,~~ claim 17, ~~characterized by the fact that wherein~~ the number of rows addressed simultaneously is not less than:

$$x_{\text{opt}} = \text{integer portion } [\tau_L / \tau_D]$$

in which relationship:

τ_D represents the time offset between row signals; and

τ_L represents the row addressing time comprising at least an anchoring breaking stage and a texture selection stage.

24. (currently amended) A method according to ~~any one of claims 1 to 16~~ claim 1, ~~characterized by the fact that wherein~~ the signals present row symmetrization.

25. (currently amended) A method according to claim 24, ~~characterized by the fact that wherein~~ each row signal comprises two successive adjacent sequences presenting respective opposite polarities.

26. (currently amended) A method according to claim 24 ~~or claim 25,~~ ~~characterized by the fact that wherein~~ the column signal is split into two sequences whose ends are synchronized respectively ~~on~~ with the end of the first sequence and ~~on~~ with the end of the second sequence of the associated row signal, the polarities of the two column signal sequences being likewise reversed.

27. (currently amended) A method according to ~~any one of claims 24 to 26~~ claim 24, ~~characterized by the fact that wherein~~ the end of the column signal is synchronized ~~on~~ with the end of the second sequence of the associated row signal.

28. (currently amended) A method according to ~~any one of claims 24 to 27~~ claim 24, ~~characterized by the fact that wherein~~ the polarities of two successive row signals are reversed.

29. (currently amended) A method according to ~~any one of claims 24 to 28~~claim 24, echaracterized by the fact that wherein the polarities of two successive row signals and also of two successive column signals are reversed.

30. (currently amended) A method according to ~~any one of claims 24 to 29~~claim 24, echaracterized by the fact that wherein the number of rows addressed simultaneously is not less than:

$$x_{\text{opt}} = \text{integer portion } [2\tau_L/\tau_D]$$

in which relationship:

τ_D represents the time offset between two row signals; and

τ_L represents the row addressing time comprising at least an anchoring breaking stage and a texture selection stage.

31. (currently amended) A method according to ~~any one of claims 1 to 30~~claim 1, echaracterized by the fact that wherein the column signal is selected from the group comprising: a column signal of duration less than or equal to the duration of the last plateau of the row signal; a column signal of duration τ_c equal to τ_D ; and a column signal of duration τ_c less than τ_D , where τ_D represents the time offset between two row signals, while τ_c represents the duration of a column signal.

32. (currently amended) A method according to ~~any one of claims 1 to 31, -~~claim 1, echaracterized by the fact that wherein the row signal is a two-plateau signal: a plateau during the anchoring breaking stage; and a plateau during the a texture selection stage.

33. (currently amended) A method according to ~~any one of claims 1 to 31, -~~claim 1, echaracterized by the fact that wherein the row signal is a multi-plateau signal during the anchoring breaking stage.

34. (currently amended) A method according to ~~any one of claims 1 to 31, -~~claim 1, echaracterized by the fact that wherein

the row signal is a multi-plateau signal during ~~the~~ a texture selection stage.

35. (currently amended) A device for electrically addressing a matrix screen having a bistable nematic liquid crystal with breaking of anchoring, the device comprising means suitable for applying controlled electrical signals respectively to the row electrodes and to the column electrodes of the screen, and ~~being characterized in that it further comprises~~ comprising the means suitable for simultaneously addressing a plurality of rows using similar row signals that are offset in time by a duration greater than or equal to the time column voltages are applied, said row addressing signals comprising in a first period at least one voltage value serving to break the anchoring of all of the pixels in the row, followed by a second period enabling the final states of the pixels making up the address row to be determined, said final states being a function of the value of each of the electrical signals applied to the corresponding columns.

36. (currently amended) A device for addressing a matrix screen of bistable nematic liquid crystals with breaking of anchoring according to claim 35, ~~characterized by the fact that~~ wherein the screen uses two textures, one texture being uniform or lightly twisted in which the molecules are at least substantially parallel to one another, and the other texture differing from the first by a twist of the order of $\pm 180^\circ$.

37. (currently amended) A device according to claim 35 ~~or claim 36, characterized by the fact that~~ wherein the ends of the column signals are synchronized ~~on~~ with the ends of the row signals.

38. (currently amended) A device according to ~~any one of claims 35 to 37~~ claim 35, ~~characterized by the fact that~~ wherein

$$\tau_c \leq \tau_D < \tau_L$$

in which relationship:

τ_D represents the time offset between two row signals;
 τ_L represents the row addressing time comprising at least an anchoring breaking stage and a texture selection stage; and
 τ_c represents the duration of a column signal.

39. (currently amended) A device according to ~~any one of claims 35 to 38~~claim 35, ~~characterized by the fact that wherein~~ the time for addressing x simultaneously addressed rows is equal to

$$\tau_L + [\tau_D(x-1)]$$

in which relationship:

τ_D represents the time offset between two row signals; and
 τ_L represents the row addressing time including at least an anchoring breaking stage and a texture selection stage.

40. (currently amended) A device according to ~~any one of claims 35 to 39~~claim 35, ~~characterized by the fact that wherein~~ the rows addressed simultaneously in time overlap are adjacent rows.

41. (currently amended) A device according to ~~any one of claims 35 to 39~~claim 35, ~~characterized by the fact that wherein~~ the rows addressed simultaneously in time overlap are rows that are spaced apart.

42. (currently amended) A device according to claim 41, ~~characterized by the fact that it includes further including~~ means suitable for simultaneously addressing i modulo j rows, i.e. rows i , $i+j$, $i+2j$, etc., by providing a row signal of duration $\tau_L = j\tau_D$, by offsetting two successive simultaneously applied row signals in time by τ_D , and by offsetting the successive blocks of simultaneously applied row signals by τ_L .

43. (currently amended) A device according to ~~any one of claims 35 to 42~~claim 35, ~~characterized by the fact that wherein~~ the parameters of the signals applied to the screen column electrodes are adapted to reduce the rms voltage of interfering

pixel pulses in order to reduce the interfering optical effects of the addressing.

44. (currently amended) A device according to ~~any one of~~ ~~claims 35 to 43~~ claim 35, ~~characterized by the fact that wherein~~ the parameters of the signals applied to the screen column electrodes are adapted to reduce the rms voltage of the interfering pixel pulses to a value of less than the Freedericksz voltage, so as to reduce the interfering optical effects of the addressing.

45. (currently amended) A device according to claim 44, ~~characterized by the fact that wherein~~ the parameters adapted to the electrical signal are selected from the group ~~comprising~~ consisting of: the waveform, ~~and/or the duration,~~ and/or the amplitude of the column signal.

46. (currently amended) A device according to ~~any one of~~ ~~claims 35 to 45~~ claim 35, ~~characterized by the fact that wherein~~ the a duration of the column signal is less than the a duration of the a last plateau of the row pulse.

47. (currently amended) A device according to ~~any one of~~ ~~claims 35 to 46~~ claim 35, ~~characterized by the fact that wherein~~ the column signal presents a squarewave shape.

48. (currently amended) A device according to ~~any one of~~ ~~claims 35 to 46~~ claim 35, ~~characterized by the fact that wherein~~ the column signal presents a ramp shape.

49. (currently amended) A device according to ~~any one of~~ ~~claims 35 to 48~~ claim 35, ~~characterized by the fact that wherein~~ x consecutive rows are addressed simultaneously with a time offset τ_D from one row to the next, the column signals corresponding to each row being sent sequentially once every τ_D , and each row signal having a total duration of not less than $\tau_L = x\tau_D$.

50. (currently amended) A device according to ~~any one of claims 35 to 49~~claim 35, characterized by the fact that wherein ~~the a~~ beginning of the row signal for the $(i+x)^{th}$ row is synchronized ~~on with the an~~ end of the row signal for the i^{th} row.

51. (currently amended) A device according to ~~any one of claims 35 to 50~~claim 35, characterized by the fact that wherein the row signals do not present any symmetrization.

52. (currently amended) A device according to ~~any one of claims 35 to 50~~claim 35, characterized by the fact that wherein the signals present frame symmetrization.

53. (currently amended) A device according to claim 52, ~~characterized by the fact that wherein~~ the polarities of the row signals are reversed from one image p to the following image $p+1$.

54. (currently amended) A device according to claim 52 ~~or claim 53~~, characterized by the fact that wherein the polarities of the row signals and ~~the~~ polarities of the column signals are reversed from one image p to the following image $p+1$.

55. (currently amended) A device according to ~~any one of claims 52 to 54~~claim 52, characterized by the fact that wherein ~~the~~ polarities of two successive row signals are reversed.

56. (currently amended) A device according to ~~any one of claims 52 to 55~~claim 52, characterized by the fact that wherein the polarities of two successive row signals, and also of two successive column signals are reversed.

57. (currently amended) A device according to ~~any one of claims 51 to 56~~claim 51, characterized by the fact that wherein the number of rows addressed simultaneously is not less than:

$$x_{\text{opt}} = \text{integer portion } [\tau_L/\tau_D]$$

in which relationship:

τ_D represents the time offset between row signals; and

τ_L represents the row addressing time comprising at least an anchoring breaking stage and a texture selection stage.

58. (currently amended) A device according to ~~any one of claims 35 to 50~~claim 35, ~~characterized by the fact that wherein~~ the signals present row symmetrization.

59. (currently amended) A device according to claim 58, ~~characterized by the fact that wherein~~ each row signal comprises two successive adjacent sequences presenting respective opposite polarities.

60. (currently amended) A device according to claim 58 ~~or claim 59~~, ~~characterized by the fact that wherein~~ the column signal is split into two sequences whose ends are synchronized respectively ~~on~~ with the end of the first sequence and ~~on~~ with the end of the second sequence of the associated row signal, the polarities of the two column signal sequences being likewise reversed.

61. (currently amended) A device according to ~~any one of claims 58 to 60~~claim 58, ~~characterized by the fact that wherein~~ the ~~an~~ end of the column signal is synchronized on the ~~an~~ end of the second sequence of the associated row signal.

62. (currently amended) A device according to ~~any one of claims 58 to 61~~claim 58, ~~characterized by the fact that wherein~~ the polarities of two successive row signals are reversed.

63. (currently amended) A device according to ~~any one of claims 58 to 62~~claim 58, ~~characterized by the fact that wherein~~ the polarities of two successive row signals and also of two successive column signals are reversed.

64. (currently amended) A device according to ~~any one of~~
~~claims 58 to 63~~claim 58, eharacterized by the fact that wherein
the number of rows addressed simultaneously is not less than:

$$x_{\text{opt}} = \text{integer portion } [2\tau_L/\tau_D]$$

in which relationship:

τ_D represents the time offset between two row signals; and

τ_L represents the row addressing time comprising at least an
anchoring breaking stage and a texture selection stage.

65. (currently amended) A device according to ~~any one of~~
~~claims 35 to 64~~claim 35, eharacterized by the fact that wherein
the column signal is selected from the group comprising: a
column signal of duration less than or equal to the duration of
the last plateau of the row signal; a column signal of duration
 τ_c equal to τ_D ; and a column signal of duration τ_c less than τ_D ,
where τ_D represents the time offset between two row signals,
while τ_c represents the duration of a column signal.

66. (currently amended) A device according to ~~any one of~~
~~claims 35 to 65~~claim 35, eharacterized by the fact that wherein
the row signal is a two-plateau signal: a plateau during the
anchoring breaking stage and a plateau during ~~the~~ a texture
selection stage.

67. (currently amended) A device according to ~~any one of~~
~~claims 35 to 65~~claim 35, eharacterized by the fact that wherein
the row signal is a multi-plateau signal during the anchoring
breaking stage.

68. (currently amended) A device according to ~~any one of~~
~~claims 35 to 65~~claim 35, eharacterized by the fact that wherein
the row signal is a multi-plateau signal during the texture
selection stage.